

2590  
0702

#5



OIPE

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/057,726

DATE: 07/09/2002

TIME: 14:01:24

Input Set : A:\21258200US.app

Output Set: N:\CRF3\07092002\J057726.raw

ENTERED

3 <110> APPLICANT: Owens, Gary K.  
 4 Manabe, Ichiro  
 6 <120> TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR EXPRESSING POLYNUCLEOTIDES  
 7 SPECIFICALLY IN SMOOTH MUSCLE CELLS IN VIVO  
 9 <130> FILE REFERENCE: 021258-000200US  
 11 <140> CURRENT APPLICATION NUMBER: 10/057726  
 C--> 12 <141> CURRENT FILING DATE: 2002-06-24  
 14 <150> PRIOR APPLICATION NUMBER: US 60/263,811  
 15 <151> PRIOR FILING DATE: 2001-01-24  
 17 <150> PRIOR APPLICATION NUMBER: US 09/600,319  
 18 <151> PRIOR FILING DATE: 2000-07-13  
 20 <150> PRIOR APPLICATION NUMBER: WO PCT/US99/01038  
 21 <151> PRIOR FILING DATE: 1999-01-15  
 23 <150> PRIOR APPLICATION NUMBER: US 60/071,300  
 24 <151> PRIOR FILING DATE: 1998-01-16  
 26 <160> NUMBER OF SEQ ID NOS: 23  
 28 <170> SOFTWARE: PatentIn Ver. 2.1  
 30 <210> SEQ ID NO: 1  
 31 <211> LENGTH: 12  
 32 <212> TYPE: DNA  
 33 <213> ORGANISM: Artificial Sequence  
 35 <220> FEATURE:  
 36 <223> OTHER INFORMATION: Description of Artificial Sequence: CARg1 sequence  
 37 to be mutated  
 39 <400> SEQUENCE: 1  
 40 ttccttttat gg 12  
 43 <210> SEQ ID NO: 2  
 44 <211> LENGTH: 11  
 45 <212> TYPE: DNA  
 46 <213> ORGANISM: Artificial Sequence  
 48 <220> FEATURE:  
 49 <223> OTHER INFORMATION: Description of Artificial Sequence: CARg1 mutated  
 50 sequence  
 52 <400> SEQUENCE: 2  
 53 ggatcctatg g 11  
 56 <210> SEQ ID NO: 3  
 57 <211> LENGTH: 10  
 58 <212> TYPE: DNA  
 59 <213> ORGANISM: Artificial Sequence  
 61 <220> FEATURE:  
 62 <223> OTHER INFORMATION: Description of Artificial Sequence: CARg2 sequence  
 63 to be mutated  
 65 <400> SEQUENCE: 3

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/057,726

DATE: 07/09/2002

TIME: 14:01:24

Input Set : A:\21258200US.app

Output Set: N:\CRF3\07092002\J057726.raw

```

66 ccttttttggg                                     10
69 <210> SEQ ID NO: 4
70 <211> LENGTH: 10
71 <212> TYPE: DNA
72 <213> ORGANISM: Artificial Sequence
74 <220> FEATURE:
75 <223> OTHER INFORMATION: Description of Artificial Sequence: CArG2 mutated
76     sequence
78 <400> SEQUENCE: 4
79 atccttttggg                                     10
82 <210> SEQ ID NO: 5
83 <211> LENGTH: 10
84 <212> TYPE: DNA
85 <213> ORGANISM: Artificial Sequence
87 <220> FEATURE:
88 <223> OTHER INFORMATION: Description of Artificial Sequence: Intronic CArG
89     sequence to be mutated
91 <400> SEQUENCE: 5
92 ccttgatatg                                     10
95 <210> SEQ ID NO: 6
96 <211> LENGTH: 10
97 <212> TYPE: DNA
98 <213> ORGANISM: Artificial Sequence
100 <220> FEATURE:
101 <223> OTHER INFORMATION: Description of Artificial Sequence: Intronic CArG
102     mutated sequence
104 <400> SEQUENCE: 6
105 aggcctatg                                     10
108 <210> SEQ ID NO: 7
109 <211> LENGTH: 20
110 <212> TYPE: DNA
111 <213> ORGANISM: Artificial Sequence
113 <220> FEATURE:
114 <223> OTHER INFORMATION: Description of Artificial Sequence: CArG1 sense
115     strand EMSA probe
117 <400> SEQUENCE: 7
118 gacttccttt tatggcctga                         20
121 <210> SEQ ID NO: 8
122 <211> LENGTH: 20
123 <212> TYPE: DNA
124 <213> ORGANISM: Artificial Sequence
126 <220> FEATURE:
127 <223> OTHER INFORMATION: Description of Artificial Sequence: CArG2 sense
128     strand EMSA probe
130 <400> SEQUENCE: 8
131 cctggccttt ttgggttggt                         20
134 <210> SEQ ID NO: 9
135 <211> LENGTH: 20
136 <212> TYPE: DNA

```

## RAW SEQUENCE LISTING

DATE: 07/09/2002

PATENT APPLICATION: US/10/057,726

TIME: 14:01:24

Input Set : A:\21258200US.app

Output Set: N:\CRF3\07092002\J057726.raw

137 <213> ORGANISM: Artificial Sequence  
139 <220> FEATURE:  
140 <223> OTHER INFORMATION: Description of Artificial Sequence: Intronic CARG  
141 sense strand EMSA probe  
143 <400> SEQUENCE: 9  
144 catgcccttg tatggtagtg 20  
147 <210> SEQ ID NO: 10  
148 <211> LENGTH: 30  
149 <212> TYPE: DNA  
150 <213> ORGANISM: Artificial Sequence  
152 <220> FEATURE:  
153 <223> OTHER INFORMATION: Description of Artificial Sequence: Insulin PCR  
154 primer 1  
156 <400> SEQUENCE: 10  
157 gccaaaactc tagggacttt aggaaggatg 30  
160 <210> SEQ ID NO: 11  
161 <211> LENGTH: 34  
162 <212> TYPE: DNA  
163 <213> ORGANISM: Artificial Sequence  
165 <220> FEATURE:  
166 <223> OTHER INFORMATION: Description of Artificial Sequence: Insulin PCR  
167 primer 2  
169 <400> SEQUENCE: 11  
170 gccgggcaac ctccagtgcc aaggtctgaa gatc 34  
173 <210> SEQ ID NO: 12  
174 <211> LENGTH: 30  
175 <212> TYPE: DNA  
176 <213> ORGANISM: Artificial Sequence  
178 <220> FEATURE:  
179 <223> OTHER INFORMATION: Description of Artificial Sequence: Beta-globin  
180 PCR primer 1  
182 <400> SEQUENCE: 12  
183 cagcgttttc ttcagaggga gtacccagag 30  
186 <210> SEQ ID NO: 13  
187 <211> LENGTH: 30  
188 <212> TYPE: DNA  
189 <213> ORGANISM: Artificial Sequence  
191 <220> FEATURE:  
192 <223> OTHER INFORMATION: Description of Artificial Sequence: Beta-globin  
193 PCR primer 2  
195 <400> SEQUENCE: 13  
196 tcagaagcaa atgtgaggag cgactgatcc 30  
199 <210> SEQ ID NO: 14  
200 <211> LENGTH: 30  
201 <212> TYPE: DNA  
202 <213> ORGANISM: Artificial Sequence  
204 <220> FEATURE:  
205 <223> OTHER INFORMATION: Description of Artificial Sequence: Skeletal  
206 alpha-actin PCR primer 1

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/057,726

DATE: 07/09/2002

TIME: 14:01:24

Input Set : A:\21258200US.app

Output Set: N:\CRF3\07092002\J057726.raw

```

208 <400> SEQUENCE: 14
209 caggctgaga agcagccgaa gggactctag                               30
212 <210> SEQ ID NO: 15
213 <211> LENGTH: 30
214 <212> TYPE: DNA
215 <213> ORGANISM: Artificial Sequence
217 <220> FEATURE:
218 <223> OTHER INFORMATION: Description of Artificial Sequence: Skeletal
219     alpha-actin PCR primer 2
221 <400> SEQUENCE: 15
222 acctccaccc tacctgctgc tctgactctg                               30
225 <210> SEQ ID NO: 16
226 <211> LENGTH: 16011
227 <212> TYPE: DNA
228 <213> ORGANISM: Rattus sp.
230 <400> SEQUENCE: 16
231 agatcttaaa acacatcaac ctgggctgag gggatgtgtg tctctgtgtc tgtgtatgca 60
232 catgcatttg aggccagatg aaaatgtcag atgtcctctc actgctttat tcccttgaga 120
233 cagggtccct cactgaactt gttggagcta tgctggtagc cagcaagccc cagtggcctt 180
234 cctgtctcta tctcacacag cacaatatgt gtggccatgc tccacttttt tacatggaaa 240
235 ttggggtcct ccaactgggg ttctcatttg tgcagtgaca ctcttcccca ctgagccatc 300
236 tcctcaggcc agctgatata tttttaaata attaaatatt tagcacatgc ctttagaagc 360
237 caatagctat ttaaagctgt ttgcttaaaa aaaaaaaaaa aaaaaagact tcattatccc 420
238 aacacttatg aggagagagc aataattcca aaaccagaac cagccagggt acacagttag 480
239 actttattta aaaaaaaaaa aaaaagaaaag aaagaaaaaa aaaagaaaaa gaaaaaaaaa 540
240 ggtcccaaag agaaatttcc ccttcatcat ctaatcacia gaaaacaatt tatttatttt 600
241 gacatcactc agtccaaaag agctttttgt aaagtgcact ctcttcttaa aataagttag 660
242 ccttcccaac caccaaaaac aaaacagaaa cctctgccct gttctagagt ccttttgaag 720
243 acttcagata cctgaagagt ggacagatat ttaccgagtg acttaaatga acatactgtc 780
244 cctgggtact gctcaagcat gccaggagag catggatggt ttatgcaagg ctggcactgt 840
245 cattaacaac tcagtaaggc ggagaagaca gagagcctct cctaagacaa tggcacataa 900
246 ggacatgggt aaccccagag gttcccggtc agtacttagc agagctgaga tcagacttgg 960
247 gcctctgtgc tcgcttgctc agtgggcaac actcaagact ggggtaaaac ataagttgat 1020
248 ctgggatatg gctcagtaat cacactgaga attcaacact gggaaggcag aggaggatcc 1080
249 ctgggattgc tgcctggctc tctagcagcc tagcagaatc aacaaactcc aggttcagtg 1140
250 agagatgctc acaaaataaa atggaggagc aactgaacac actcagtgtt gacccacaca 1200
251 cacactaaag aacacgtgta ccacacagac acagacacag gataacctac ccatgttgtg 1260
252 tatggactca gccagcccag gttggaaact cagtctctct gttaaactct ttcaaacctg 1320
253 ggtcctcagc gatgtgctgg ggaacctact tcacggcatt attctgggca ttagatgtaa 1380
254 aggaagcagt aaagtttccc ttttcttgac tgaggtgatg cgagaatgag ggcctgaatt 1440
255 ccattctctag gactcacata aagacacca gactgcactg gccagtaagc ctcacctatg 1500
256 cctccaagcc tggctgtgag agactgtctc aaaaacaaaag taaaaacaac aaaatcaatg 1560
257 tcagatgtgc acacatcgaa tcccagcatg tgtacggcat gcttgcatgc agccttgttt 1620
258 acagagagtt ctaggccaac cagctataca cagttagacc ctgtggtaga cggtcctaa 1680
259 gaactgacat ttgtgactga cagatgtgca catctaccac atgcacatca cagtttccat 1740
260 tttacaaaaa ggtaaacact tactaattga ttagggagtg gggcacccca ctgctacatg 1800
261 tgaaagccag agaattgatgt gttccagtcg gtcagttgtg tccttccacc atgtaggtcc 1860
262 taaaaatgga actcaaggca gtcttggcag caagtgtttt atccatagtg ccattctatt 1920
263 ggcccagctc ccttataatg aaattatttg tgtttccaag ttgatgtaat tctttaaaaa 1980

```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/057,726

DATE: 07/09/2002

TIME: 14:01:24

Input Set : A:\21258200US.app

Output Set: N:\CRF3\07092002\J057726.raw

```

264 tcagctgtgc tccttgaggt ttgacttcac tgaagcctgc tacaggagtg cccttccttc 2040
265 ctagcactag gatggccagc tctgggctgg ttccagacta gggtaggtgc aggtgggccc 2100
266 tgggcttccc tccttcattc ctctgggct caatgccaa ggggtttcca ttctttttac 2160
267 gtgcaactgc aagaggtctt ggggaagcgg cctcatccat catgcagaga gctcctcccc 2220
268 cacctctaca gagagccagc caagctgctg tccttggtct tgctctgtcc accctgtgag 2280
269 gaggtctggg tgaggttggg gatggggagg atcaggattc agatgttttc aagtctgaga 2340
270 agcaggtgag ctgtgtccta gaagaatatg gaaggggtct actgggggtg agatatagat 2400
271 cactgtatca aagtcaacag gggggctgtg tggctttttc atatcccaaa gtcagcttgg 2460
272 tgctggtttc ctaggcttcc tgagtccgac aaaggtgcag tgtgttaatc tcacaccact 2520
273 tcaaggactg ttacaaaaaa aaaataggaa ggagctcgat tcgccccctt ttacaggcag 2580
274 ggtaactaag agccagtact tgcccatggt cctgctgtta taaagaggct cagtagactc 2640
275 ccattcaaac aactgtgctc agaggccttc tgtcgtcctg tggccaattc ccctattgct 2700
276 ctctggagtg aatattggga tattaacacg tactgacctt gctgaggacc ctgagggtac 2760
277 tcagctcttc tggcctgcaa aatggggctg ggacaggttg gccaggatca tcctctggtt 2820
278 gggagaacca gctgcacgtg ggtctggagc tcttattagt actggggtcc ccataacgct 2880
279 ccatgggctc agcgggaggc tgcacgggac catatttagt cagggggagc cagagccccg 2940
280 ctggtatgcc aagctgggaa ttcttgtttc gagaattgct cctggccttt ttgggttgtt 3000
281 tccccccag gccaggagg gaggaccagc tcaggacctc gagggctcgt gcgcggggag 3060
282 cgaggcgtcc ccggcctggc atgaggccaa ctctgcctcg acttcccttt atggcctgag 3120
283 tgtgagtgc tggagagtgg gagggaggga gggagagagg gaggaagaa agcggggtgg 3180
284 gggggtggg ggggtggggg gtgggggggt gcggagagca gagacagaga cagagagaca 3240
285 gagagacaca cagagagaga cagagagaca gagagacaca cagagagaga cagagacaga 3300
286 cacacacaga gagagacaga cagacaaaga gagagacaga gacagagaga cacacacaga 3360
287 gagacagaca gacaaaaaga gaagagagac agagacttta gggacgtaat catcacaggg 3420
288 aaatcaaagc taagagtgtg atgaaaagag tgtcagggtc gacaaaagag acaggggcca 3480
289 agatccgtac agggctaagg gacacagaga ttgagaacac cgagtggtaa ggggggcagc 3540
290 tgacagcagg tccccacat tctcttagag tcttagcatg catcctccaa gtgccataac 3600
291 gcagtgcgaa cccgcttttc aacgatgctc agagaaacca tgttattggt cccaggcacc 3660
292 ccggtttagt ggtgaaagga gctgcagaga acaagttgga aaaacaagtt tcccagcagt 3720
293 cacagaggat atgcagtgc tgtgcgact tgtttttttt tttttaagtc cccttcccc 3780
294 cccccgcccc gccccggct tgcataagc aaccggcttc gaatcttagg aagtggcagg 3840
295 cgaatgaaga ggggatgagg gagagagggt ggcataagc ctccagtatg tatgaacaga 3900
296 aagaggttaa aatccagctg gaatggacct aggggaagaa attctcaagt ctccctacag 3960
297 actctgaaca ccgaatccct tttctctaag gacgcaggat ctgggtggct gcagggagcg 4020
298 aggcctgagg ctgtgggtca acttgccagc agccccctg cgcctgcgct aggtggttcc 4080
299 cagaggctct gtctctcacc tgcagggggc gctgggaagg gcagaggacc ctcccacccc 4140
300 gcccggcagt cacctcccc tccccaccct cgggtagcgc tgactctata aagccagatg 4200
301 tccgaagcat acagagagat ttggaccatc ccagcctggg atcagtgtca gatccgagct 4260
302 ctccatccgg tgttctcctg ctagtccacc ccagtagcag atctgtaagt agaagttgat 4320
303 cccttagggg caagcctggg cggtgagctt gacagcttc taaaacatcc tccagggagt 4380
304 ggggacccca aggggttctg attgtcatct cttataagga cagtgggaag aagcccggta 4440
305 caggaccacc ctagacctcc cgtgattact cccattctcc gcaccaaacc agcatcctca 4500
306 ggttgccctat gaacagaacc acctgggaaa gtggggtagg taattaaagg ttctggccac 4560
307 tgggcccatt tccaggtatt ttaagactac agtctaaaaa gcaaacaaaa tggcctactt 4620
308 aaaaactaac tagtgacaca gtggacaagt gaactgtggt ggaaactgtg ggtctgaatt 4680
309 caaataccag tattgaaaat aataagaagt ctgggataaa tatccactga acatccccag 4740
310 aatactcaaa acatgggtta aagtttaatg actctgaaca caggccgtgt gttcttattc 4800
311 cactcctaatt ggaatgtgct gttgaaaatt tactggtaaa caaaaatgct taatgttaaa 4860
312 taaggtcggt tcttctctg ttacttccaa aacacaaatc tccattaaaa aggaaccttc 4920

```

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/057,726

DATE: 07/09/2002

TIME: 14:01:25

Input Set : A:\21258200US.app

Output Set: N:\CRF3\07092002\J057726.raw

L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date